

INTERIOR DESIGN SUGGESTIONS

Generally when we think of noise, images of loud activities such as walking near traffic or working with noisy power tools spring to mind. Most of us don't think about all the sounds in our own homes. Noise can come from many sources ranging from the use of appliances and plumbing to footsteps and cupboard doors closing. Whether we live in a single-family home or in a thirty-storey highrise, the sound we create is going to affect other people.

A certain amount of sound transmission is inevitable in multi-unit buildings such as homes with secondary suites, condominiums, apartments and townhouses. To reduce our impact on neighbours and vice versa, we can modify our homes to reduce the amount of sound transmitted beyond our walls or from room to room.

Room details

- Include large areas of sound-absorbent materials. Such materials include carpets, rugs, upholstered furniture, large pillows and heavy draperies. Creative solutions such as fabric wall hangings (quilts, duvets, banners, etc.) or simply lots of "stuff" such as shelves full of books, plants, and knick-knacks also help absorb loud sounds and at the same time aesthetically enhance a room.
- Interestingly, the initial significant addition of sound-absorbent



material to an otherwise bare room such as an area rug, a bed, or an overstuffed couch, will produce the most dramatic reduction in the "noisiness" of the room. Further changes and/or additions will yield progressively smaller improvements.

Walls, floors and ceilings

- Party walls and floors should include insulation and sound-isolating construction techniques. This is particularly important if you are considering adding a secondary suite.
- A good wall that reduces noise transfer should have:
 - substantial mass (i.e. gypsum board, plaster)
 - a structural break (discontinuity) between the two sides of the party wall ("staggered stud" wall)
 - a cavity that is as wide as possible and filled with sound-absorbent material
 - no holes, cracks or gaps.
- In order to improve existing party walls you can fill the wall with loose-fill blow-in insulation, add gypsum board, remount gypsum board on Resilient Channels, create a "staggered stud" wall or create a "double-stud" wall.
- Party floors/ceilings should be built similarly to party walls for optimal airborne sound insulation (sound resulting from voices, music etc.).





SOUND MYTH: When I replace the carpet in my house with hardwood flooring, there won't be noise problems as long as I use one of those "sound control" underlays.

SOUND TRUTH: The commercially available resilient underlay materials do not provide as much footstep noise control as a good carpet and underlay. Before replacing carpet with hard floor finishes, you should consult with a noise control expert, not a hardwood flooring salesperson.



Floor finishing

- Carpeting is a good noise suppressor for both tenant and neighbour.
- If you are planning to put in a hardwood or other hard-surfaced floor, get advice on ways to reduce noise transmission. Some methods include:
 - installing a semi-resilient finish floor (cork, vinyl etc.) as it is less noisy
 - using a resilient underlay (e.g. foam rubber, cushioned vinyl, cork, expanded nylon webbing) which can be put beneath the flooring or pre-applied
 - constructing, with the assistance of a noise control expert, a true "floating" floor in which the walking surface is "isolated" from the structural floor below using resilient strips or pads
 - placing mats, area rugs or runners in entryways, corridors, kitchens and other high-traffic areas which have hard-surfaced floors.
- Before installing a new floor in a condominium, it is important to check with your strata council.

Doors

- Suite entry doors should be solid-core.
- Door knockers are unnecessary in multi-unit homes.
- Interior doors should be fitted with soft rubber or foam-tipped door stops to reduce impact with the wall. Spring stops are good at protecting the wall but they do little to reduce impact sound. Interior doors should also include a soft foam trim around the inside of the frame to reduce noise when the door is closed too hard.
- Sliding/folding closet doors should have a smooth, quiet operation – avoid sheet metal doors.



Kitchens and appliances

- Appliances such as washers and dryers, garburators and dishwashers should be located on interior or corridor walls in locations above or near non-noise sensitive spaces.
- Most newer appliances will be quieter.
- When appliances must be located above noise-sensitive spaces (living rooms, bedrooms, dens etc.), they should be mounted using materials that will absorb vibrations.
- Where possible, avoid placing kitchen cupboards/cabinets on party walls.
- Look for soft rubber foam bumper strips on cupboard doors and drawers, as well as soft rubber or plastic drawer rollers and shelf liners.

Plumbing

- Water pressure and flow velocity should be kept low to reduce noise through pipes. If water pressure is high then closing taps quickly may result in a banging noise from your pipes.
- Pipes should not be located in shared walls or ceilings. Pipes should only be attached to the wall of the suite it serves, not to the wall of the adjacent suite.
- Each suite should have a separate branch of pipes from the main.
- In order to cut down on sound transmission, mount pipes using vibration isolating techniques. Choose cast iron pipes and insulate when possible.

Bathrooms

- Quieter toilets are available. They have centrifugal flushing action, bowls with small water surface areas, and large exposed porcelain areas.
- Toilets are also available with full- or half-flush options, which use less water.



- To reduce splashing/squeaking noises transmitted to the suite below, the space between the bathtub and floor should be filled with fibreglass batt insulation.
- Gypsum board wall sheets behind bathtubs should extend all the way to the floor.
- Look for low-noise bathroom (and kitchen) exhaust fans as well as other low-noise appliances.

- Hot tubs can produce a lot of noise. They need to be well insulated and carefully located.



Mechanical systems



- Heating systems can be a major source of sound; check when purchasing a new high-efficiency heating system because some new systems can have very loud exhaust vents.
- A number of modern heating systems have fans incorporated and do a very good job of cooling a home in the summer, making air conditioning unnecessary.
- Air conditioning systems have fans and compressors that can be loud and therefore the location of these devices should be well thought out.
- Watch for mechanical rooms that share common walls or floors with living spaces.
- While convenient, built-in vacuums can be a source of noise if not properly installed in a non-noise-sensitive area.
- Consider lined heating vents to reduce sound transmission between rooms.



When installing mechanical devices outdoors, both location and installation techniques are important. One location to avoid is your side yard, or the small narrow space between your house and your neighbours. Noise levels can be further reduced by installing a sound shield around exterior mechanical equipment.

Electrical

- Outlets in the wall can increase sound transmission between rooms, as they create openings in the wall which provide a path for sound to travel. When installing outlets, they should be offset from each other and preferably in different sections of the wall.
- Any gaps around fixtures should be sealed off. Foam pads that fit under a switch cover are available.
- Quiet type light switches should be used, particularly on shared walls.
- Transformers should be in the basement or ground floors, with “vibration isolation” for larger units.
- Electrical distribution panels should be located on interior walls, not shared walls.

